# PATENT COOPERATION TREATY

## PCT

REC'D 26 JAN 2005

PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

## (PCT Article 36 and Rule 70)

| Applicant's or agent's file reference<br>PF020096 | **FOR FURTHER ACTION** | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |
|---|---|---|

| International application No.<br>PCT/EP 03/07476 | International filing date *(day/month/year)*<br>09.07.2003 | Priority date *(day/month/year)*<br>26.07.2002 |
|---|---|---|

International Patent Classification (IPC) or both national classification and IPC

G06T9/00

Applicant

THOMSON LICENSING SA et al.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   I ☒ Basis of the opinion

   II ☐ Priority

   III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   IV ☐ Lack of unity of invention

   V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   VI ☐ Certain documents cited

   VII ☐ Certain defects in the international application

   VIII ☐ Certain observations on the international application

| Date of submission of the demand<br><br>12.02.2004 | Date of completion of this report<br><br>24.01.2005 |
|---|---|

| Name and mailing address of the international preliminary examining authority:<br><br>European Patent Office - Gitschiner Str. 103<br>D-10958 Berlin<br>Tel. +49 30 25901 - 0<br>Fax: +49 30 25901 - 840 | Authorized Officer<br><br>Raeymaekers, P<br><br>Telephone No. +49 30 25901-443 |
|---|---|

## I.  Basis of the report

1.  With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

**Description, Pages**

1-13                          as originally filed

**Claims, Numbers**

1-11                          as originally filed

**Drawings, Figures**

1-2                           as originally filed

2.  With regard to the **language,** all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language:      , which is:

☐  the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

☐  the language of publication of the international application (under Rule 48.3(b)).

☐  the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐  contained in the international application in written form.

☐  filed together with the international application in computer readable form.

☐  furnished subsequently to this Authority in written form.

☐  furnished subsequently to this Authority in computer readable form.

☐  The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐  ·The statement that the information recorded in computer readable form·is identical to the written sequence listing has been furnished.

4.  The amendments have resulted in the cancellation of:

☐  the description,       pages:

☐  the claims,            Nos.:

☐  the drawings,          sheets:

5. ☒   This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

**see separate sheet**

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

| | | | |
|---|---|---|---|
| Novelty (N) | Yes: | Claims | 4-6,8,9,11 |
| | No: | Claims | 1-3,7,10 |
| Inventive step (IS) | Yes: | Claims | |
| | No: | Claims | 4-6,8,9,11 |
| Industrial applicability (IA) | Yes: | Claims | 1-11 |
| | No: | Claims | |

2. Citations and explanations

**see separate sheet**

## Re Item I
**Basis of the Report**

The amendments filed under Article 19(1) with letter of 7.12.2004 introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 19(2) PCT. The amendments concerned are the following:

claims 1 and 10 : "...*each image to be displayed together with the images of said once coded stream needed for its decoding constituting a group, each group is transmitted from the server to the decoder after the others in the order of display.*"

The excerpt is not valid for the normal forward mode. In fig. 1b, the group associated with e.g. P8 should be the group of images containing the reference frames of P8, i.e. P5 and I2. However, the frame sent before P8 is B4, which cannot belong to the group of images for decoding P8. Therefore, it can be concluded that the group for P8 only contains P8. The group does not contain the images of said once coded stream needed for the decoding of P8. The excerpt therefore describes subject-matter which is not present in the application and consequently, the excerpt violates art. 19(2) PCT.

The same reasoning can be made for the backward mode. Yet another problem will be demonstrated for the backward mode. In fig. 1d, P11 is transmitted only once and this before B"0, although P11 is after B"0 in the order of reverse display. Therefore, NOT each group is transmitted from the server to the decoder after the others in the order of display.The excerpt therefore describes subject-matter which is not present in the application and consequently, the excerpt violates art. 19(2) PCT.

## Re Item V
**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following document:

   D1: LIN C-W ET AL: "MPEG VIDEO STREAMING WITH VCR FUNCTIONALITY", IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, IEEE INC. NEW YORK, US, vol. 11, no. 3, March 2001 (2001-03), pages 415-425, XP001093487, ISSN: 1051-8215

2.   The present application does not meet the criteria of Article 33(1) PCT, because
the subject-matter of claims 1-3,7 and 10 is not new in the sense of Article 33(2)
PCT.

Claim 1 :
The document D1 discloses (the references in parentheses applying to
this document):

"M*ethod of processing digital images, these images (M•I, M"I) being transmitted
from a server (202) to a decoder (208, 206) using various modes of display* (fig. 1,
"MPEG video server"; p. 416, 2nd col., 1st par.: "...performing VCR trick-modes on
the client decoder..."), *images being coded in a dependent manner such that the
coding of a first image is used to code a second image* (temporal predictive coding
is used in D1, which is standard in MPEG), *the said method being characterized in
that the order of transmission of the images from the server to the decoder is
determined as a function of the dependence of these images and the mode of display
requested by the decoder* (p. 419, col. 2, discusses a fast-backward of frames
20,14,8,2; for the decoding of frame 8, frame 7 of the reverse bitstream is sent and
not frame 0 of the forward stream, therefore it can be said that the order of
transmission is a function of the mode of display, i.e. fast-backward, sending frame
8 in fast-backward implies sending frame 7 first, and a function of the dependence
of the images, since frame 7 of the reverse bitstream is sent since frame 8 is
dependent on frame 7 of the forward stream)."

The same reasoning applies to claim 10.

Claim 2 : D1 discloses claim 2 on p.420, col. 1, 2nd par. "With the proposed
method..., the server streams the bitstream as follows:" and fig. 9, arrow from
client to server with subtext "control(PLAY,FF,FB, PAUSE)"

Claim 3: implicitly disclosed by D1:  along with the pictures, MPEG always
multiplexes commands like p.e. the temporal reference with the MPEG coded
pictures.

Claim 7: all trick modes are disclosed by D1, see fig. 9, arrow from client to server
with subtext "control(PLAY,FF,FB, PAUSE).

3.      The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 4-6, 8, 9 and 11 does not involve an inventive step in the sense of Article 33(3) PCT.

3.1     Claim 4 is a list of characteristics for which it is not apparent to deduce what technical problem is solved. Since the claim does not appear to solve a technical problem, there is a lack of inventive step.

3.2     Claims 5, 6, 8, 9 and 11 appear to be execution details which come within the customary practice followed by the persons skilled in the art.

4.      Regarding novelty, D1 discloses also on p.415, 2nd column, 3rd par., "another possibility...when the gop is large", the implementation of a VCR functionality between a server and a client when only the forward stream is available. Where in the examples given in D1, frames of the forward and reverse bitstream are sent to implement the trick modes, it is implicit that the trick modes can also be implemented when only a forward bitstream is available.

EPO - DG
BERLIN
09. 12. 2004

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## CLAIMS (93)

**1.** Method of processing digital images, these images (M'i, M"i) being transmitted from a server (202) to a decoder (208, 206) using various modes of display, images being coded once in a dependent manner such that the coding of a first image is used to code a second image, the said method being characterized in that, each image to be displayed together with the images of said once coded stream needed for its decoding constituting a group, each group is transmitted from the server to the decoder after the others in the order of display.

**2.** Method according to Claim 1, characterized in that the mode of display used by the decoder (206, 208) is transmitted to the server (202) so that the server (202) performs the transmission of the images as a function of the mode of display used by the decoder (206, 208).

**3.** Method according to Claim 3, characterized in that, when the server (202) transmits coded images ($M_i$', M"i) to the decoder (206, 208), the server in parallel therewith transmits a command ($C_i$', C"i) associated with each image comprising information allowing the decoder to process each image.

**4.** Method according to Claim 3, characterized in that the information comprises
- a field (Display) indicating whether the said image is to be displayed,
- a field (Decode) indicating whether the said image is to be decoded,
- a field (BuffNr) indicating in which memory buffer of the decoder (206) the said image (M'i) is to be recorded after decoding,
- a field (P_BuffNr, I_BuffNr) indicating the index numbers of the memory buffers containing images serving for the decoding of the said image,
- a field (Forward) indicating the direction of display of the images.

5.    Method according to Claim 4, characterized in that, when the terminal receives coded images ($M_i'$) and a command ($C_i'$) associated with each image, the command ($C_i'$) is transmitted to a first memory buffer (212) while the coded images are transmitted to other memory buffers (214b).

6.    Method according to one of Claims 3 to 5, characterized in that the commands stored in the first memory buffer (212) are processed as a function of their order of storage in the said memory buffer.

7.    Method according to one of Claims 1 to 6, characterized in that use is made of modes of display defined by a direction of display, that is to say the order in which images are displayed, as well as by a speed of display such that a variable number of images is displayed for one and the same processed group of images.

8.    Method according to one of Claims 5 to 7, characterized in that when the decoder changes display mode, the size of the first memory buffer (212) is reduced.

9.    Method according to one of Claims 5 to 8, characterized in that when the decoder changes display mode, the first memory buffer (212) is emptied.

10.    Device for processing digital images, comprising means of transmitting these images from a server (202) to a decoder (206, 208) using various modes of display, the images ($M'i$, $M''i$) being coded once in a dependent manner such that the coding of a first image is used to code a second image, each image to be displayed together with the images of said once coded stream needed for its decoding constituting a group, the said device being characterized in that it comprises means to transmit each group from the server to the decoder after the others in the order of display, the said device being preferably adapted to implement a method according to any one of Claims 1 to 9.

RECTIFIED SHEET

11. Computer program product comprising program code instructions for the execution of the steps of the method of processing digital images according to one of Claims 1 to 9, when the said program is executed on a computer.